Space Weather Forecast

Issued on Friday, 19 July 2024 at 01:29 Local

This forecast provides a four day assessment of space weather events. The probabilities stated below are for reaching or exceeding the given levels. For more information about space weather impacts please see the Met Office Space Weather Scales https://www.metoffice.gov.uk/weather/learn-about/space-weather/uk-scales

Space Weather Forecast Headline: M-class flares expected. Chance of Minor Storms late today or more likely tomorrow (19-20 Jul) due to Coronal Mass Ejection arrival

Analysis of Space Weather Activity over past 24 hours

Solar Activity: Activity has been moderate, with a long duration Moderate class flare, peaking at 18/1014 UTC from the largest sunspot on the visible disc, in the southeast quadrant. This is also the most magnetically complex region on the disc, and has continued to show some slow growth and development. Currently there are eighteen other sunspot regions on the Earth-facing disc, of which two are unnumbered. The majority of these eighteen regions are small and simple, either stable or with little growth or some decay. However two regions have grown in spot number and area, but despite this remain relatively small, while another region has moderte magnetic complexity.

No Earth-directed coronal mass ejections (CME's) have been observed in available imagery.
Solar Wind / Geomagnetic Activity: The solar wind speed remained at background levels, around 360 km/s then gradually decreasing to end the day around 310 km/s. Interplanetary magnetic field (IMF) was Weak, its north-south component, weak and favouring a positive orientation (northward). Geomagnetic activity was Quiet throughout.

Solar Radiation: The count rate of energetic particles (High energy protons) remained at background with no solar radiation storms occurring.

Four-Day Space Weather Forecast Summary

Solar Activity: Moderate activity is expected with isolated Moderate class flares, and a slight chance of X-class flares, given the number of regions on the disc. However, significant flares are most likely from the large and magnetically complex region in the southeast. New or returning regions are also likely to rotate onto the visible disc from the far side through the period, and may increase the likelihood of significant flares.

Solar Wind /Geomagnetic Activity: The coronal mass ejections from the Moderate class flare on the 16th are expected to arrive either late today or more likely tomorrow (19-20 Jul). Any solar wind enhancement from the northern coronal hole feature is most likely to remain north of Earth, but there is a slight chance of weak enhancements today (19 Jul) with solar winds perhaps temporarily reaching slightly elevated levels. Mainly Quiet geomagnetic activity is expected overall, but brief Unsettled periods are possible today (19 Jul) from any fast wind interaction. Then Active to Minor Storm intervals are expected either late today but more likely tomorrow (19-20 Jul) with any CME arrival.

Issued by Met Office Space Weather Advisor, Tel: +44 (0) 330 135 4254 Email: moswoc@metoffice.gov.uk

© Crown Copyright 2024. All Rights Reserved.

Met Office Space Weather Forecast

Energetic Particles / Solar Radiation: The count rate of energetic particles (High energy protons) is likely to remain at background with no solar radiation storms expected. However, any notable flares will bring the potential for this to rise, with a slight chance of reaching the S1 Minor Solar Radiation Storm level.

Geomagnetic Storms:

Geo-Magnetic Storm Probability (Exceedance)	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Minor or Moderate	G1 to G2	No	10	60	40	5
Strong	G3	No	1	2	1	1
Severe	G4	No	1	1	1	1
Extreme	G5	No	1	1	1	1

Radio Blackouts - X Ray Flares:

X Ray Flares Probability	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	R1-R2 M Class	Yes	70	70	70	70
Very Active	R3 to R5 X	No	10	10	10	10

Solar Radiation Storms - (High Energy Protons):

Radiation Storms Probability (Exceedance)	Level (cm^{-2} sr^{-1} s^{-1})	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	≥ S1	No	10	10	10	15
Very Active	≥ S3 *	No	1	1	1	1
* S3 ≥ 10 MeV ≥ 1000 pfu and / or ≥ 50 MeV ≥ 10 pfu. (pfu = $cm^{-2}sr^{-1}s^{-1}$)						

Issued by Met Office Space Weather Advisor, Tel: +44 (0) 330 135 4254 Email: moswoc@metoffice.gov.uk

© Crown Copyright 2024. All Rights Reserved.